

That which is claimed is:

1. Isolated nucleic acid encoding a mammalian DS-CAM member of the Immunoglobulin (Ig) superfamily of proteins, or a fragment thereof, wherein said DS-CAM comprises at least 7 Ig-like domains.
2. Isolated nucleic acid according to claim 1, wherein said nucleic acid, or fragments thereof, is selected from:
- (a) DNA encoding the amino acid sequence set forth in SEQ ID NO:2 or SEQ ID NO:11, or the DS-CAM coding region of SEQ ID NO:7, SEQ ID NO:8 or SEQ ID NO:9,
 - (b) DNA that hybridizes to the DNA of (a) under moderately stringent conditions, wherein said DNA encodes biologically active DS-CAM, or
 - (c) DNA degenerate with respect to either (a) or (b) above, wherein said DNA encodes biologically active DS-CAM.
3. A nucleic acid according to claim 2, wherein said nucleic acid hybridizes under high stringency conditions to the DS-CAM coding portion of nucleotides SEQ ID NO:1, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9 or SEQ ID NO:10.
4. A nucleic acid according to claim 2, wherein the nucleotide sequence of said nucleic acid is substantially the same as that set forth in SEQ ID NO:1, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9 or SEQ ID NO:10.
5. A nucleic acid according to claim 2, wherein the nucleotide sequence of said nucleic acid is the same as that set forth in SEQ ID NO:1, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9 or SEQ ID NO:10.

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6. A nucleic acid according to claim 2, wherein said nucleic acid is cDNA.

7. A vector containing the nucleic acid of claim 2.

5 8. Recombinant cells containing the nucleic acid of claim 2.

9. An oligonucleotide comprising at least 15 nucleotides capable of specifically hybridizing with a sequence of nucleic acids of the nucleotide sequence set forth in SEQ ID NO:1, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9 or SEQ ID NO:10.

10. An oligonucleotide according to claim 9, wherein said oligonucleotide is labeled with a detectable marker.

15 11. An antisense oligonucleotide capable of specifically binding to mRNA encoded by said nucleic acid according to claim 2.

12. A kit for detecting the presence of the DS-CAM cDNA sequence comprising at least one oligonucleotide according to claim 10.

13. An isolated DS-CAM protein comprising at least 7 Ig-like domains.

14. A DS-CAM protein according to claim 13, further characterized by being expressed in a significantly higher amount in brain versus lung, liver or kidney.

15. A DS-CAM protein according to claim 13, wherein the amino acid sequence of said protein comprises substantially the same protein sequence set forth in

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SEQ ID NO:2 or SEQ ID NO:11, or the DS-CAM coding region of SEQ ID NO:7, SEQ ID NO:8 or SEQ ID NO:9.

16. A DS-CAM protein according to claim 15 comprising the same amino acid sequence as the protein sequence set forth in SEQ ID NO:2 or SEQ ID NO:11, or the DS-CAM coding region of SEQ ID NO:7, SEQ ID NO:8 or SEQ ID NO:9.

17. A DS-CAM protein according to claim 13, wherein said protein is encoded by a nucleotide sequence comprising substantially the same nucleotide sequence set forth in SEQ ID NO:1, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, or SEQ ID NO:10.

18. A DS-CAM protein according to claim 17, wherein said protein is encoded by a nucleotide sequence comprising SEQ ID NO:1 or SEQ ID NO:10.

19. A DS-CAM protein according to claim 13, wherein said protein is encoded by a nucleotide sequence that comprises substantially the same nucleotide sequence as nucleotides 453-6185 set forth in SEQ ID NO:1, nucleotides 453-5168 set forth in SEQ ID NO:10, SEQ ID NO:7, SEQ ID NO:8 or SEQ ID NO:9.

20. Method for expression of a DS-CAM-related protein, said method comprising culturing cells of claim 8 under conditions suitable for expression of said DS-CAM protein.

21. An isolated anti-DS-CAM antibody having specific reactivity with a DS-CAM protein according to claim 13.

22. Antibody according to claim 21, wherein said antibody is a monoclonal antibody.

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23. An antibody according to claim 21, wherein said antibody is a polyclonal antibody.

24. A composition comprising an amount of the antisense oligonucleotide according to claim 11 effective
5 to inhibit expression of a DS-CAM protein and an acceptable hydrophobic carrier capable of passing through a cell membrane.

25. A transgenic nonhuman mammal expressing exogenous nucleic acid encoding a DS-CAM protein.

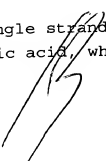
10 26. A transgenic nonhuman mammal according to claim 25, wherein said nucleic acid encoding said DS-CAM protein has been mutated, and wherein the DS-CAM protein so expressed is not native DS-CAM.

27. A transgenic nonhuman mammal according to claim
15 25, wherein the transgenic nonhuman mammal is a mouse.

28. A method for identifying nucleic acids encoding a mammalian DS-CAM protein, said method comprising:
contacting a sample containing nucleic acids with an oligonucleotide according to claim 9, wherein said
20 contacting is effected under high stringency hybridization conditions, and identifying compounds which hybridize thereto.

29. A method for detecting the presence of a mammalian DS-CAM protein in a sample, said method
25 comprising contacting a test sample with an antibody according to claim 21, detecting the presence of an antibody-DS-CAM complex, and therefor detecting the presence of a mammalian DS-CAM in said test sample.

30. Single strand DNA primers for amplification of
30 DS-CAM nucleic acid, wherein said primers comprise a



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nucleic acid sequence derived from the nucleic acid
sequence set forth as SEQ ID NO: 1, SEQ ID NO:10,
SEQ ID NO:7, SEQ ID NO:8 or SEQ ID NO:9.



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